Remarks

In view of the above amendments and the following remarks, reconsideration of the rejections and further examination are requested.

The specification and abstract have been reviewed and revised to make a number of editorial revisions thereto. Submitted herewith is a clean copy of the abstract with the revisions incorporated therein. No new matter has been added to the application via such amendments.

Claims 1-5, 14, 15 and 25-30 have been rejected under 35 U.S.C. §102(e) as being anticipated by Pitman (US 2002/0143530). Claims 6-13, 16-24 and 31-34 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Pitman in view of Ellis (US 5,504,518).

Claims 6, 8 and 11 have been amended so as to place them into independent form by incorporating the limitations from claim 1. Claim 21 has been amended so as to include the limitations of claim 24. Claims 31 and 33 have been amended so as to depend from claim 6. Claims 1-5, 14-20 and 24 have been canceled without prejudice or disclaimer to the subject matter contained therein.

Further, claims 11, 25, 29, 30 and 32 have been amended so as to make a number of editorial revisions thereto. These revisions have been made to place the claims in better U.S. form. None of these amendments have been made to narrow the scope of protection of the claims, or to address issues related to patentability, and therefore, these amendments should not be construed as limiting the scope of equivalents of the claimed features offered by the Doctrine of Equivalents.

Additionally, new claims 35-42 have been added.

The above-mentioned rejections are respectfully traversed and submitted to be inapplicable to the pending claims for the following reasons.

Claim 6 is patentable over the combination of Pitman and Ellis, since claim 6 recites a feature quantity extracting apparatus including, in part, a feature quantity calculating section that calculates peak values corresponding to values at respective peaks of band spectra, and obtains, as prescribed feature quantities, values of difference between peak values of frequency bands. The combination of Pitman and Ellis fails to disclose or suggest the feature quantity calculating section as recited in claim 6.

Regarding Pitman, it discloses a system for identifying audio content based on a number of events each of which is associated with a semitone frequency band in which it occurred and a

time group within which it occurred. During the identification, the system computes a spectrum of an audio signal for each successive test period. The system then analyzes the spectrums of the audio signal using a fast Fourier transform (FFT) algorithm. Next, the system collects the spectrum information into a number of semitone frequency bands or channels, and a first average of the power in each semitone frequency channel is taken over the last T1 seconds and a second average of the power in each semitone frequency channel is taken over the last T2 seconds. The system then records the values of the first and second averages, so that it can be determined whether the first average has crossed the second average. It is noted that Pitman indicates that if the first average does cross the second average, the crossing will occur in the vicinity of an extremum (local maximum or minimum) in a semitone frequency channel. If the first and second averages cross, the system then assigns events to the semitone frequency band. (See pages 3 and 4, paragraphs [0030] – [0039] and Figure 4A).

As discussed above, Pitman discloses a system that is capable of identifying audio content based on events that are associated with the audio content. However, as admitted in the rejection, Pitman fails to disclose or suggest the feature quantity calculating section as recited in claim 6. As a result, Ellis is relied upon in the rejection as disclosing this feature.

Regarding Ellis, it discloses a segment recognition subsystem 26 that is capable of detecting a number matches on a given key signature for consecutive frames and that the number of matches is referred to as a "peak width". Based on the description, however, it is apparent that when two different signals are compared, a point at which the two signals match is referred to as a peak and the number of consecutively detected matches is referred to as the peak width. (See column 45, lines 25-31).

On the other hand, in claim 6 of the present invention, a frequency transforming section derives a frequency spectrum from a signal portion of an audio signal, and a band extracting section extracts frequency bands from the frequency spectrum and outputs frequency spectra. The feature quantity calculating section then calculates the peak values corresponding to values at respective peaks of the band spectra. Accordingly, the "peak value" as recited in claim 6 is the value corresponding to the value at the peak of the frequency spectrum and is totally different from the point at which two signals match. Furthermore, the claimed feature quantity calculating section obtains "values of difference between peak values," which are differences between a peak value in one band and a peak value in another band. Therefore, the value of difference

between the peak values is completely unrelated to the number of consecutively detected matches of two signals. It is clear that the meaning of "peak" with regard to the present invention is completely different from the meaning of "peak" in Ellis. As a result, Ellis also fails to disclose or suggest the feature quantity calculating section of claim 6.

In light of the above discussion, it is apparent that Ellis fails to address the deficiencies of Pitman. As a result, the combination of Pitman and Ellis fails to render claim 6 obvious.

Claim 8 is patentable over the combination of Pitman and Ellis, since claim 8 recites a feature quantity extracting apparatus including, in part, a feature quantity calculating section that calculates peak frequencies according to frequencies at respective peaks of band spectra, and obtains, as prescribed feature quantities, numerical values related to the calculated peak frequencies. The combination of Pitman and Ellis fails to disclose or suggest the feature quantity calculating section as recited in claim 8.

As indicated in the rejection, Pitman fails to disclose or suggest the feature quantity calculating section. As a result, Ellis is relied upon as disclosing this feature.

As for Ellis, it is noted that in claim 8 the feature quantity calculating section calculates peak frequencies at which the band spectra has peak values. As mentioned above, the meaning of the "peak" in the present invention is totally different from that in Ellis. Furthermore, the "peak frequency" in claim 8 of the present invention is not disclosed or suggested by Ellis. Therefore, it is apparent that Ellis fails to address the deficiencies of Pitman. As a result, the combination of Pitman and Ellis fails to render claim 8 obvious.

Claim 11 is patentable over the combination of Pitman and Ellis, since claim 11 recites a feature quantity extracting apparatus including, in part, a frequency quantity calculating section including a peak frequency calculating section that calculates peak frequencies corresponding to frequencies at respective peaks of band spectra, and a peak frequency time variation calculating section that calculates, as prescribed frequency quantities, numerical values related to respective time variation quantities of the peak frequencies calculated by the peak frequency calculating section. The combination of Pitman and Ellis fails to disclose or suggest the feature quantity calculating section as recited in claim 11.

As discussed above, Pitman discloses a system that is capable over identifying audio content based on events that are associated with the audio content. However, as admitted in the

rejection, Pitman fails to disclose or suggest the feature quantity calculating section as recited in claim 11. As a result, Ellis is relied upon in the rejection as disclosing this feature.

In claim 11, the feature quantity calculating section, similar to claim 8, calculates the peak frequencies and further calculates time variation quantities of the peak frequencies. As stated above, in Ellis, there is no disclosure or suggestion of the "peak frequencies" as recited in claim 11 and no disclosure or suggestion of the "time variation quantities of the peak frequencies." Therefore, it is apparent that Ellis fails to address the deficiencies of Pitman. As a result, the combination of Pitman and Ellis fails to render claim 11 obvious.

Claim 21 is patentable over the combination of Pitman and Ellis, since claim 21 recites a feature quantity extracting apparatus including, in part, a feature quantity calculating section including a cross-correlation value calculating section that calculates a cross-correlation value at prescribed time intervals, and a cross-correlation value time variation calculating section that calculates a time variation quantity of the cross-correlation value as a frequency quantity of an audio signal. The combination of Pitman and Ellis fails to disclose or suggest the feature quantity calculating section as recited in claim 21.

As indicated in the rejection, Pitman fails to disclose or suggest the feature quantity calculating section. As a result, Ellis is relied upon as disclosing this feature.

Regarding Ellis, it does disclose a correlator 420 that calculates a degree of matching (cross-correlation value) between two different signals (a frame signature and a key signature). (See column 5, lines 16-19 and column 11, lines 8-11).

On the other hand, the feature quantity calculating section of claim 21 calculates a cross-correlation value of two different signal portions of one signal (i.e., the extracted audio signal). Further, the feature quantity calculating section of claim 21 includes a cross-correlation value time variation calculating section for calculating a time variation quantity of the cross-correlation value, which also is not disclosed or suggested by Ellis. Although Ellis discloses the calculation of a cross-correlation value of two different signals, there is no disclosure or suggestion of the calculation of the cross-correlation value of the different signal portions of one signal or the calculation of the time variation quantity of the cross-correlation value. Therefore, it is apparent that Ellis fails to address the deficiencies of Pitman. As a result, the combination of Pitman and Ellis fails to render claim 21 obvious

Claim 25 is patentable over Pitman, since claim 25 recites a feature quantity extracting apparatus including, in part, an envelope curve deriving section for deriving envelope signals which represent envelop curves of frequency spectra derived by a frequency transforming section. Pitman fails to disclose or suggest the envelope curve deriving section as recited in claim 25.

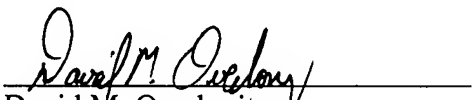
In claim 25, an envelope curve deriving section derives envelope signals which represent envelop curves of the frequency spectra. In the rejection, it is indicated that the envelope curve deriving section is disclosed at page 3, paragraph [0032] of Pitman. However, as mentioned above, paragraph [0032] of Pitman describes that "the spectrum information (e.g., Fourier frequency components)...are collected into a number of semitone frequency bands or channels." It is clear that this section of Pitman fails to disclose or suggest the derivation of an envelope curve. As a result, Pitman fails to disclose or suggest the present invention as recited in claim 25. Further, it is noted that Ellis also fails to disclose or suggest this feature of claim 25.

Because of the above-mentioned distinctions, it is believed clear that claims 6-13, 21-23 and 25-42 are allowable over the references relied upon in the rejections. Furthermore, it is submitted that the distinctions are such that a person having ordinary skill in the art at the time of invention would not have been motivated to make any combination of the references of record in such a manner as to result in, or otherwise render obvious, the present invention as recited in claims 6-13, 21-23 and 25-42. Therefore, it is submitted that claims 6-13, 21-23 and 25-42 are clearly allowable over the prior art of record.

In view of the above amendments and remarks, it is submitted that the present application is now in condition for allowance. The Examiner is invited to contact the undersigned by telephone if it is felt that there are issues remaining which must be resolved before allowance of the application.

Respectfully submitted,

Kazuhiro MOCHINAGA et al.

By: 

David M. Ovedovitz
Registration No. 45,336
Attorney for Applicants

DMO/jmj
Washington, D.C. 20006-1021
Telephone (202) 721-8200
Facsimile (202) 721-8250
July 17, 2007